
A panel of induced pluripotent stem cells from chimpanzees: a resource for comparative functional genomics.

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Public Summary:

Comparative genomics studies in primates are restricted due to our limited access to samples. In order to gain better insight into the genetic processes that underlie variation in complex phenotypes in primates, we must have access to faithful model systems for a wide range of cell types. To facilitate this, we generated a panel of 7 fully characterized chimpanzee induced pluripotent stem cell (iPSC) lines derived from healthy donors. To demonstrate the utility of comparative iPSC panels, we collected RNA-sequencing and DNA methylation data from the chimpanzee iPSCs and the corresponding fibroblast lines, as well as from 7 human iPSCs and their source lines, which encompass multiple populations and cell types. We observe much less within-species variation in iPSCs than in somatic cells, indicating the reprogramming process erases many inter-individual differences. The low within-species regulatory variation in iPSCs allowed us to identify many novel inter-species regulatory differences of small magnitude.

Scientific Abstract:

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